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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/700,054 | 11/04/2003 | Young-chol Lee | 1793.1048 | 3105 |
| 21171 | 7590 | 02/04/2005 | EXAMINER | |
| STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005 | | | CRUZ, MAGDA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2851 | |

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/700,054

Applicant(s)

LEE ET AL.

Examiner

Magda Cruz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-21 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

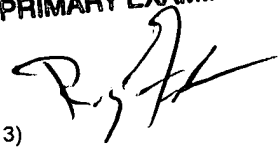
- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 04 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

RODNEY FULLER
PRIMARY EXAMINER



Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/4/2003.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Johanson.

Johanson (US 2004/0032739 A1) discloses:

- Regarding claim 17, a lighting system (Figure 5) comprising a lamp light source (60) radiating light, a reflector (40) reflecting the light emitted from the lamp light source (60) to emit the light in one direction; and an intercepting unit (50) reflecting a portion of the light (G_1) emitted from the lamp light source (60) toward the reflector so that the light emitted from the reflector has an annular light distribution (page 2, paragraph 0031).

- Regarding claim 18, the reflector (40) is an elliptic mirror or a parabolic mirror (page 2, paragraph 0034, line 4).
- Regarding claims 19 and 20, the intercepting unit (50) is convex (see element 50 on Figure 5), the surface thereof curving toward the lamp light source (60).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 21 is rejected under 35 U.S.C. 102(b) as being anticipated by Kurtz et al.

Kurtz et al. (US Patent Number 6,577,429 B1) discloses a projection system (100) comprising a first reflecting mirror (280), a second reflecting mirror (285), and a display device (column 19, lines 6-7) provided in the surface of the first reflecting mirror (280), wherein the second reflecting mirror (285) receives light reflected (275) from the first reflecting mirror and reflects the received light toward the display device (column 19, lines 4-13).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al. in view of Choi.

Kurtz et al. (US Patent Number 6,577,429 B1) discloses a projection system (100) comprising a lighting system (110), a screen (215); a first reflecting mirror (280), a display device (column 19, lines 6-7) provided in a predetermined position in the first reflecting mirror (280), a second reflecting mirror (285) reflecting light reflected from the first reflecting mirror (280) toward the display device, and a projection lens unit (205) enlarging and projecting a color image formed by the display device onto the screen (215); shielding plates (160) provided in the centers of the uniform light forming units (175), shielding incident light (130) from proceeding; wherein the uniform light forming units are integrating rods or an array of fly eye lenses (178a, 178b); wherein the first reflecting mirror (280) and the second reflecting mirror (285) are symmetrical with respect to an optical axis; wherein each of the first and second reflecting mirrors is one of an elliptic mirror, a plane mirror, an aspherical mirror, and a spherical mirror (column 19, lines 1-3).

Kurtz et al. teaches the salient features of the present invention, except a color filter separating light emitted from the lighting system according to wavelengths of the light; reflecting the light passing through the color filter to change a path of the light; and collimating lenses provided in an optical path between the color filter and the first reflecting mirror, wherein the collimating lenses convert incident light into parallel light. However, Kurtz et al. discloses collimating lenses (140) in the optical path.

Choi (US Patent Number 6,457,830 B1) discloses a color filter (121) separating light emitted from the lighting system (110) according to wavelengths of the light; reflecting the light passing through the color filter (121) to change a path of the light; and collimating lenses (131) provided in an optical path between the color filter (121) and the first reflecting mirror (see Figure 4), wherein the collimating lenses convert incident light into parallel light (column 3, lines 58-61).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the color filter disclosed by Choi in combination with Kurtz et al.'s invention, for the purpose of forming a uniform light beam (column 3, line 55).

8. Claims 2-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al. in view of Choi as applied to claims 1 and 10-16 above, and further in view of Johanson.

Kurtz et al. (US Patent Number 6,577,429 B1) in combination with Choi (US Patent Number 6,457,830 B1) teaches the salient features of the present invention, except an intercepting unit reflecting a portion of the light emitted from the lamp light source toward the reflector so that the light emitted from the reflector has an annular light distribution, wherein the intercepting unit is convex, the surface thereof curving toward the lamp light source. However, Choi discloses a lamp light source (110) comprising a reflector (113).

Johanson (US 2004/0032739 A1) discloses an intercepting unit (50) reflecting a portion of the light emitted from the lamp light source (60) toward the reflector (40) so that the light emitted from the reflector (40) has an annular light distribution, wherein the

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intercepting unit (50) is convex (see Figure 5), the surface thereof curving toward the lamp light source (60).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the intercepting unit disclosed by Johanson, in combination with Kurtz et al. and Choi's invention, for the purpose of reflecting additional light into the illumination tube (page 2, paragraph 0032, lines 22-23).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kruschwitz et al. (US Patent Number 6,594,090 B2) discloses a projection display system having beam shaping optics including a fly's eye integrator having an array of lenslets.

Bierhuizen et al. (US Patent Number 6,839,095 B2) teaches a color optical system in which light rays emitted by a light source propagated through a color wheel.

Huibers (US 2005/0007557 A1) shows a projection system with improved micromirror array.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magda Cruz whose telephone number is (571) 272-2114. The examiner can normally be reached on Monday through Thursday 8:00-5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RODNEY FULLER
PRIMARY EXAMINER



Magda Cruz
Patent Examiner
February 1, 2005